CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1997-1998 Mid-Atlantic Integrated Assessment Program
STREAM FISH TISSUE CONTAMINANTS (METALS) DATA

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document
EMAP Surface Waters Stream Database
1997-1998 Northeast Streams
Stream Fish Tissue Contaminants (Metals) Data Summarized by Stream

1.2 Authors of the Catalog Entry
U.S. EPA NHEERL Western Ecology Division
Corvallis, OR

1.3 Catalog Revision Date
October 2002

1.4 Data Set Name
FTISMETL

1.5 Task Group
Surface Waters

1.6 Data Set Identification Code
148

1.7 Version
001

1.8 Requested Acknowledgment
These data were produced as part of the U.S. EPA's Environmental Monitoring and Assessment Program (EMAP). If you publish these data or use them for analyses in publications, EPA requires a standard statement for work it has supported:

"Although the data described in this article have been funded wholly or in part by the U.S. Environmental Protection Agency through its EMAP Surface Waters Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement of the conclusions should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

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2.2 Investigation Participant - Sample Collection

Oregon State University
State of Virginia
State of West Virginia
State of Maryland
U.S. Environmental Protection Agency
Office of Research and Development
Region III

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The primary function of the stream fish data are to provide a snapshot of the fish assemblage present in the stream at the time of sampling. The fish community represents an integral component of stream biological integrity and represents a snapshot of a publicly visible reflection of stream quality.

3.2 Keywords for the Data Set

Fish assemblage, fish community, fish species identification, fish tissue contamination

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The Environmental Monitoring and Assessment Program (EMAP) was designed to periodically estimate the status and trends of the Nation's ecological resources on a regional basis. EMAP provides a strategy to identify and bound the extent, magnitude and location of environmental degradation and improvement on a regional scale based on a probability-based statistical survey design.

4.2 Data Set Objective

This data set is part of a demonstration project to evaluate approaches to monitoring streams in EMAP. The data set contains the results of multihabitat sample of the fish assemblage taken during spring base flow. A subsample of fish were selected for analysis of metal concentrations in tissue of a whole fish sample submitted for analysis.

4.3 Data Set Background Discussion

The fish community within a stream is an integral component of stream biological integrity and represents a publicly visible reflection of stream quality. Contamination of the fish community is a direct threat to the health of the fish community as well as to the human population consuming these fish. This data set contains the metal contaminant concentrations in whole-fish tissue sample collected at each stream.

4.4 Summary of Data Set Parameters

Fish Tissue Contaminants parameters include wet weight concentrations of metal compounds such as silver, aluminum, cadmium, lead, chromium, copper, and iron.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To obtain a sample of the fish assemblage within a stream during a two month sampling window from April through mid-June. To obtain enough individuals of a single species suitable for tissue contaminant analysis.

5.1.2 Sample Collection Methods Summary

The assemblage was sampled using a single pass with a backpack electrofishing unit multiple habitats throughout the stream. A subsample of five or more fish from a single species was selected for analysis of metal contaminants in the whole fish.

5.1.3 Sampling Start Date

May 1997

5.1.4 Sampling End Date

September 1998

5.1.5 Platform

NA

5.1.6 Sampling Gear

Backpack electrofishing unit

5.1.7 Manufacturer of Instruments

NA

5.1.8 Key Variables

NA

5.1.9 Sampling Method Calibration

NA

5.1.10 Sample Collection Quality Control

See Lazorchak, et al. 1998.

5.1.11 Sample Collection Method Reference

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group, 1994 Activities. EPA 600/X-91/080, Rev. 2.00. U.S. Environmental Protection Agency, Las Vegas Nevada.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

5.1.12 Sample Collection Method Deviations

5.2 DATA PREPARATION AND SAMPLE PROCESSING

5.2.1 Sample Processing Objective

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.2 Sample Processing Methods Summary

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.3 Sample Processing Method Calibration

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.4 Sample Processing Quality Control

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.5 Sample Processing Method Reference

See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

6. DATA MANIPULATIONS

6.1 Name of New or Modified Values

None.

6.2 Data Manipulation Description

See Chaloud and Peck (1994).

7. DATA DESCRIPTION

7.1 Description of Parameters

#	Parameter SAS Name	Data Type	Len	Format	Parameter Label
13	ABUND	Num	8		Number of individuals
46	AG	Num	8		Wet wt concentration of silver ug/g
47	AGT	Char	10		Silver flag
22	AL	Num	8		Wet wt concentration of aluminum ug/g
23	AS	Num	8		Wet wt concentration of arsenic ug/g
24	AST	Char	1		Arsenic flag
26	B	Num	8		Wet wt concentration of boron ug/g
25	BA	Num	8		Wet wt concentration of barium ug/g
27	BT	Char	1		Boron flag

30	CA	Num	8		Wet wt concentration of calcium ug/g
28	CD	Num	8		Wet wt concentration of cadmium ug/g
29	CDT	Char	1		Cadium flag
5	CMP_THRU	Char	1		Collect from throughout reach (Y/N)
19	COM_FLD	Char	800		Comments
31	CR	Num	8		Wet wt concentration of chromium ug/g
32	CU	Num	8		Wet wt concentration of copper ug/g
3	DATE_COL	Num	8	MMDDYY	Date stream visited
8	DATE_PRO	Num	8	MMDDYY	Lab processing date
34	FE	Num	8		Wet wt concentration of iron ug/g
14	FSHLEN1	Num	8		Length of fish one
15	FSHLEN2	Num	8		Length of fish two
16	FSHLEN3	Num	8		Length of fish three
17	FSHLEN4	Num	8		Length of fish four
18	FSHLEN5	Num	8		Length of fish five
38	HG	Num	8		Wet wt concentration of mercury ng/g
33	INTFRNT	Char	18		Interferents in order of concentration
42	K	Num	8		Wet wt concentration of potassium ug/g
54	LAT_DD	Num	8		X-Site Latitude (decimal degrees)
20	LIPID	Num	8		Percent lipid
55	LON_DD	Num	8		X-Site Longitude (decimal degrees)
40	MG	Num	8		Wet wt concentration of magnesium ug/g
37	MN	Num	8		Wet wt concentration of mangenese ug/g
21	MOISTURE	Num	8		Percent moisture
48	NA	Num	8		Wet wt concentration of sodium ug/g
39	NI	Num	8		Wet wt concentration of nickel ug/g
41	P	Num	8		Wet wt concentration of phosphorus ug/g
35	PB	Num	8		Wet wt concentration of lead ug/g
36	PBT	Char	1		Lead flag
50	S	Num	8		Wet wt concentration of sulfer ug/g
6	SAMPLED	Char	30		Site sampled code
9	SAMP_ID	Num	8		Sample ID (barcode)
10	SAMP_TYP	Char	9		Primary/secondary target species
43	SE	Num	8		Wet wt concentration of selenium ug/g
44	SE_T	Char	10		Selenium flag
45	SI	Num	8		Wet wt concentration of silicon ug/g
1	SITE_ID	Char	15		Stream Identification
51	SN	Num	8		Wet wt concentration of tin ug/g
52	SNT	Char	1		Tin flag
49	SR	Num	8		Wet wt concentration of strontium ug/g
4	TEAM_ID	Num	8		Field crew number
11	VERTCODE	Char	8		Specific 8-letter taxa code
12	VERTNAME	Char	25		Common name of sample species
2	VISIT_NO	Num	8		Visit number
7	YEAR	Num	8		Sample year
53	ZN	Num	8		Wet wt concentration of zinc ug/g

7.1.6 Precision to which values are reported

7.1.7 Minimum Value in Data Set

Name	Min
ABUND	2
AG	0.017
AL	1.75
AS	0.067
B	0.008
BA	0.288
CA	4860
CD	0.01
CR	0.139
CU	0.724
DATE_COL	05/20/1997
DATE_PRO	02/10/1999
FE	9.57
FSHLEN1	1
FSHLEN2	1
FSHLEN3	1
FSHLEN4	1
FSHLEN5	50
HG	0.0083
K	2160
LAT_DD	35.182938
LIPID	0
LON_DD	-83.555659
MG	273.5
MN	1.2
MOISTURE	59.96
NA	515
NI	0.054
P	4060
PB	0.097
S	1560
SAMP_ID	231022
SE	0.2
SI	1.84
SN	0.05
SR	2.945
TEAM_ID	1
VISIT_NO	0
YEAR	1997
ZN	14.2

7.1.7 Maximum Value in Data Set

Name	Max
ABUND	396
AG	0.39
AL	1981
AS	0.84
B	0.54

BA	52.1
CA	24700
CD	0.617
CR	8.56
CU	180.3
DATE_COL	09/30/1998
DATE_PRO	01/17/2001
FE	1666
FSHLEN1	362
FSHLEN2	390
FSHLEN3	303
FSHLEN4	310
FSHLEN5	315
HG	960.19
K	4160
LAT_DD	42.567163
LIPID	11.55
LON_DD	-74.688136
MG	796
MN	199
MOISTURE	82.66177373
NA	1610
NI	117
P	13600
PB	8.64
S	3090
SAMP_ID	250321
SE	3.59
SI	710
SN	79.9
SR	95.8
TEAM_ID	6
VISIT_NO	3
YEAR	1998
ZN	113

7.2 Data Record Example

7.2.1 Column Names for Example Records

```
"ABUND","AG","AGT","AL","AS","AST","B","BA","BT","CA","CD","CDT","CMP_THRU",
"COM_FLD","CR","CU","DATE_COL","DATE_PRO","FE","FSHLEN1","FSHLEN2","FSHLEN3",
"FSHLEN4","FSHLEN5","HG","INTFRNT","K","LAT_DD","LIPID","LON_DD","MG","MN",
"MOISTURE","NA","NI","P","PB","PBT","S","SAMPLED","SAMP_ID","SAMP_TYP","SE",
"SE_T","SI","SITE_ID","SN","SNT","SR","TEAM_ID","VERTCODE","VERTNAME",
"VISIT_NO","YEAR","ZN"
```

7.2.2 Example Data Records

```
.,.," ",.,.," ",.,.," ",.,.," "," ","IM-primary section of fish tissue blank",
.,.,09/08/1997,.,.,.,.,.,.,.,.," ",.,38.247943,.,-81.886602,.,.,.,.,.,.,.,.,
" ",.,"None collected",.,"primary",.," ",.,"MAIA97-001",.," ",.,4," ",
" ",1,1997,.
```

.,.," ",.,.," ",.,.," ",.,.," "," ","IM-secondary section of fish tissue
blank",.,.,09/08/1997,.,.,.,.,.,.,.,.,.," ",.,38.247943,.,-81.886602,.,.,.,.,.,
.,.," ",.,"None collected",.,"secondary",.," ",.,"MAIA97-001",.," ",.,4," ",
" ",1,1997,.

18,.," ",.,.," ",.,.," ",.,.," ","Y","FISHING DONE ON 07/21/97-VISIT 2 -
FISHING ONLY",.,.,07/21/1997,.,.,.,.,.,.,.,.,0.0449,"",.,38.550017,.,-82.144807,
.,.,.,.,.,.,.," ",.,"Sample lost",232173,"primary",.," ",.,"MAIA97-002",.,
" ",.,4,"SEMOATRO","CREEK CHUB",1,1997,.

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude
-83 Degrees 33 Minutes 20 Seconds West (-83.555659 Decimal Degrees)

8.2 Maximum Longitude
-74 Degrees 41 Minutes 17 Seconds West (-74.688136 Decimal Degrees)

8.3 Minimum Latitude
35 Degrees 10 Minutes 58 Seconds North (35.182938 Decimal Degrees)

8.4 Maximum Latitude
42 Degrees 34 Minutes 1 Seconds North (42.567163 Decimal Degrees)

8.5 Name of Area or Region
Mid Atlantic: EPA Region III which includes Delaware, Maryland, New York, Virginia, and West Virginia

9. QUALITY CONTROL / QUALITY ASSURANCE

9.1 Data Quality Objectives
See Chaloud and Peck (1994)

9.2 Quality Assurance Procedures
See Chaloud and Peck (1994)

9.3 Unassessed Errors
NA

10. DATA ACCESS

10.1 Data Access Procedures

10.2 Data Access Restrictions

10.3 Data Access Contact Persons

10.4 Data Set Format

10.5 Information Concerning Anonymous FTP

10.6 Information Concerning WWW

10.7 EMAP CD-ROM Containing the Data

11. REFERENCES

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program - Surface Waters: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group. U.S. Environmental Protection Agency. Office of Research and Development. Washington, D.C.

12. TABLE OF ACRONYMS

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